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THE HABITAT GROUPS OF NORTH AMERICAN
BIRDS IN THE AMERICAN MUSEUM OF
NATURAL HISTORY.

BY J. A. ALLEN.

Plates I-IV.

METHODS of exhibition in museums of natural history have greatly changed during the last twenty years. Previously it was nearly the universal custom to mount birds as single specimens, on stands or perches, the well-known T-perch sufficing for all perching birds, and flat stands for terrestrial birds, with no attempt to illustrate their habits or natural surroundings.

The American Museum of Natural History, in New York City was the first museum in this country to depart radically from this time-honored method, by direction of its late President, Morris K. Jesup. Early in 1887, twelve groups, illustrating the nesting habits of as many species of our common birds, were placed on exhibition, the cost of their preparation having been generously contributed by the late Mrs. Robert L. Stuart, widow of a former president of the Museum.¹ The accessories for the groups were prepared by the late Mrs. E. R. Mogridge, of London and New York, whose admirable work at the South Kensington Museum had attracted Mr. Jesup's attention. Her methods of reproducing in facsimile the foliage and flowers that composed the principal accessories of these groups was known for a time only to Mrs. Mogridge and her brother, Mr. Mintern, who was her personal assistant in the work, but later she taught her methods to others, forming classes for this purpose, not only in New York but in other cities, where she was employed by different museums for the construction of similar groups. In this way the preparation of such exhibits was undertaken elsewhere, notably in Washington, Pittsburgh, Chicago, and Springfield (Mass.).

During the following ten or twelve years the number of bird groups at the American Museum increased to fifty or more. The

¹ Cf. Auk, IV, 1887, p. 271.

group method of exhibition was also extended to insects and to mammals, of which latter a number of groups illustrating the habits of species found near New York City were prepared.

Prior to 1893, the construction of the groups was directed by the late Jenness Richardson, Chief Taxidermist of the Museum, who not only designed them, but collected and assembled the materials.¹ Later, for some years, the work was carried on by his successor, Mr. John Rowley, whose skill as a preparator is widely recognized.

The first fifty bird groups illustrate the nesting habits and location of the nest of as many species of North American birds, mostly the common species, from Grebes to Thrushes. They include a few Hawks and Owls, and various water birds, among the latter a Labrador Duck group, containing five specimens of this rare and now extinct species.

The special subject of the present article is the new series of so-called 'Habitat Groups,' formally opened to the public on February 25, 1909, the occasion having been made a public function, under the patronage of Professor Henry Fairfield Osborn, President of the Museum, and Mr. John L. Cadwalader, one of the principal contributors to the 'North American Ornithological Fund,' a generous gift from a few members of the Museum which rendered possible the gathering and preparation of the material for these expensive groups. They number about twenty-five, and are constructed on a much larger scale and with a much broader purpose than the earlier groups mentioned above, they being intended to illustrate not only the nesting habits of the species shown, but also their haunts or 'habitats.' The area of these groups ranges from 60 to 160 square feet, to which is added a panoramic background, which in most cases merges insensibly into the group itself. The backgrounds are painted by skilful artists, generally from studies made at the actual site represented. They are thus, like the accessories among which the birds with their nests and eggs or young are grouped, accurate and realistic representations of the actual scenes in nature which the species had chosen as their nesting haunts. They thus possess a scenic and geographic value in addition to their ornithological interest. These landscapes naturally

¹ Cf. Auk, X, 1893, p. 307.

represent widely diversified types of country, since they include the famous Bird Rocks in the Gulf of St. Lawrence, several bird keys in the Bahamas, a cactus desert in Arizona, plains and badlands in the Middle West, alpine scenes in the Rocky Mountains, the Palisades and the Hackensack marshes near New York City, and other localities of special interest.

In connection with the recent formal opening of the Gallery of the Bird Hall, the Museum has issued a 'guide leaflet' to this series of 'habitat groups,'¹ containing a full-page half-tone illustration of each, from photographs, and a transcript of the descriptive group labels. On this brochure is largely based the following account of these notable groups, which form a striking feature of the Museum's recent remarkable progress in placing before the public attractive and instructive exhibits in many lines of research. They are here given in the order of sequence in the hall, beginning at the right (southeast corner of the gallery).

Summer Bird-life of Cobb's Island, Virginia. Background by Walter Cox. Birds by H. C. Denslow. — Cobb's Island, off the coast of Virginia, is a shell-strewn sand-bar, seven miles long and about the same distance from the mainland, and thus affords ideal conditions as a breeding resort for certain kinds of water birds, as Terns of different species, Black Skimmers, Oyster-catchers and Plovers, while the adjoining marshes on its western border are the favorite nesting places of the Clapper Rail.

This group contains 63 birds, representing seven species. The scene is a sandy beach, with oyster and other sea shells, interspersed with tufts of the coarse grass characteristic of such beaches. The background is a view looking seaward, the whole forming a well-blended shore scene. The Least Terns, which formerly bred here in thousands, and are introduced into the group, were practically exterminated some years since, when 1200 were killed in a single day for millinery purposes, and the island was nearly depopulated of bird life.

¹ The Habitat Groups of North American Birds in the American Museum of Natural History. By Frank M. Chapman, Curator of Ornithology. No. 26 of the Guide leaflets of the American Museum of Natural History. Edmund Otis Hovey, Editor. New York. Published by the Museum, February, 1909.—8vo, pp. 48, with colored frontispiece (Wild Turkey), and a half-tone illustration of each group, from photographs.

Duck Hawk on the Palisades. Background by Hobart Nichols.—The nest is on a shelf of a cliff, and contains down-covered young; one of the old birds is approaching the nest bearing in its talons a domestic pigeon. The locality is the western shore of the Hudson, at Englewood, New Jersey, and the outlook is northward from the 'Gorge,' overlooking the river.

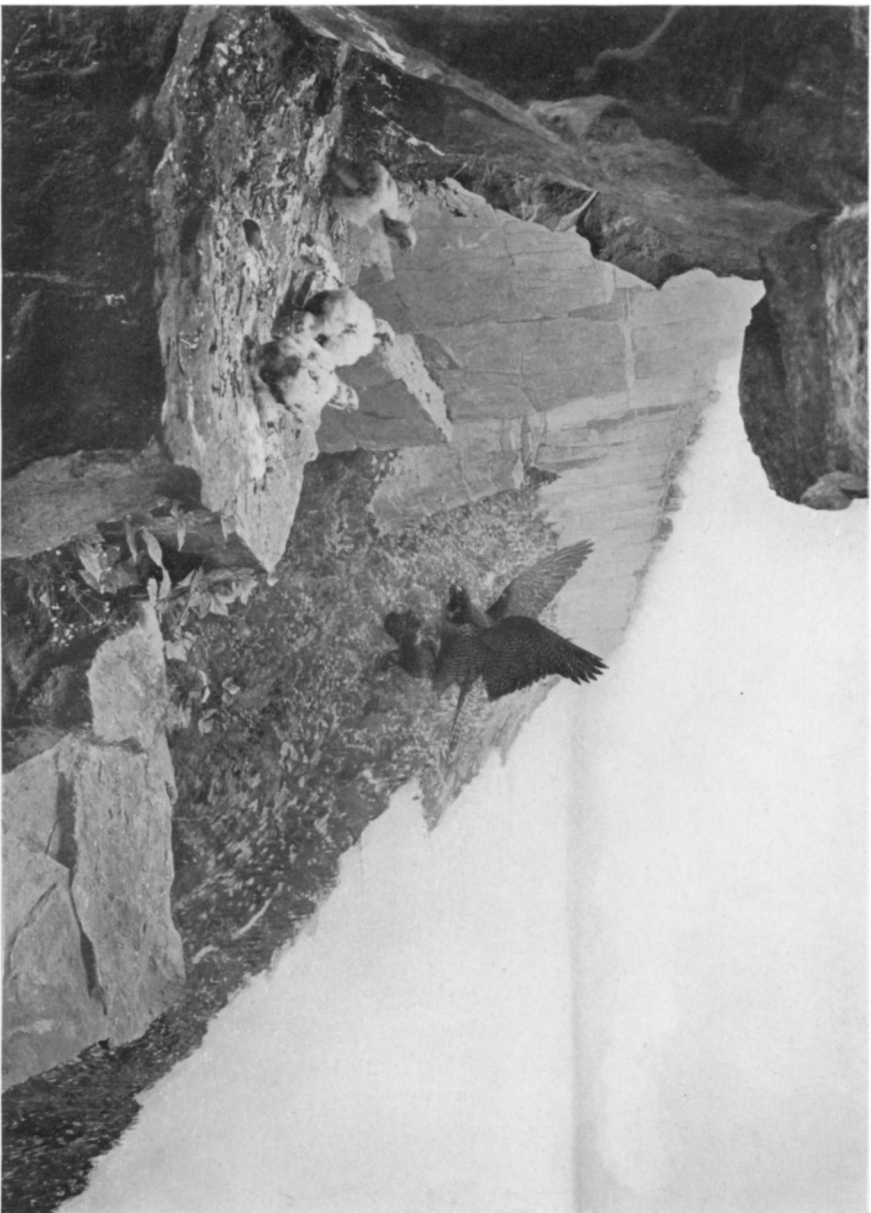
August Bird-Life of the Hackensack Meadows. Background by Bruce Horsfall. Birds by E. W. Smith.—The locality is the marshes of the Hackensack River, near Little Ferry, New Jersey. The view is westward, across the marshes. Cattails, wild rice, reeds, sagittarias and other aquatic plants make up the foreground, which is enlivened by the rose-colored flowers of the marsh-mallow and the scarlet of cardinal flowers. The purpose of the group is to illustrate a night resort of Swallows, and the feeding grounds of Reedbirds, Red-winged Blackbirds, and other species which visit the marshes in large numbers to feed on the wild rice. The birds are perched on the cattails and wild rice, with rails and a pair of Wood Ducks in the immediate foreground.

Wild Turkey Group. Background by Bruce Horsfall. Birds by H. C. Denslow.—A pair of old birds with their brood of young, in an opening in a forest in the mountains of West Virginia.

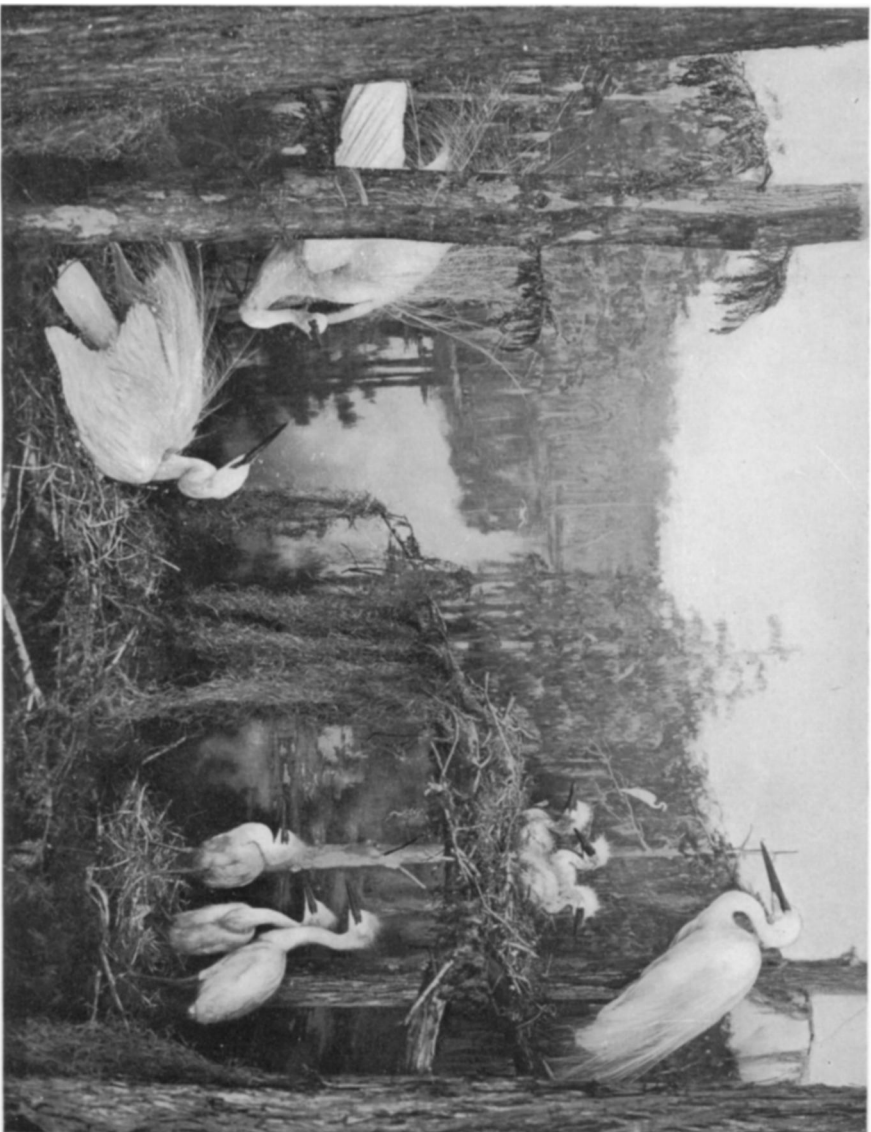
Florida Great Blue Heron. Background by Bruce Horsfall. Birds by H. C. Denslow.—A group of adult birds and half-grown young in the tree-tops of a Florida heronry, with characteristic surroundings.

The Anhinga or Water Turkey. Background by Bruce Horsfall.—Nests with eggs, nests with young birds at different stages of growth, and several old birds of both sexes, with one swimming submerged in the foreground. The scene is a lake nearly enclosed with cypress and palmettoes, with a distant vista showing the characteristic scenery of the lake region near St. Lucie, Florida. 'Bonnets' (yellow pond-lilies) give color to the immediate foreground.

Sandhill Crane Group. Background by Bruce Horsfall. Birds by Herbert Lang.—A pair of birds, with their nest and eggs, in a water-filled depression on the Kissimmee Prairies, Florida; background, a broad view of the prairies; hammocks and palm trees in the distance.



DUCK HAWK ON THE PALISADES.



THE AMERICAN EGRET IN A SOUTH CAROLINA CYPRESS SWAMP.

Brown Pelican, Pelican Island, Florida. Background by Bruce Horsfall. Birds by E. W. Smith.—A large group, containing seven old birds, nine young in various stages of growth, and several nests with eggs, some placed on the ground, others in mangrove bushes. It illustrates the manner in which the young are fed with predigested food. The background shows numerous birds in the distance, in various positions, some of them sitting on their nests, others walking on the sandy beach or swimming in the water. The view is toward the low mainland shore, with palm trees as a prominent feature of the distant landscape.

The American Egret in a South Carolina Cypress Swamp. Background by Bruce Horsfall. Birds by Herbert Lang.—Several old birds in fine feather, with nests containing young in various stages of development, in moss-draped trees at a height of forty feet from the ground. The sketches for the landscape were made from the trees at this altitude, to secure the desired effect. A creek in the midview gives an opportunity for water and forest effects, which include Egrets perched in the nearer trees.

A Cactus Desert and its Bird-life. Background by Bruce Horsfall. Birds by H. C. Denslow.—The locality is near Tucson, Arizona. The birds introduced—about 50 specimens, representing 20 species—are those characteristic of a desert environment, and include the Western Mockingbird, Palmer Thrasher, Cactus Wren, Road-runner, Gambel and Scaled Quails, three species of Doves, the Texas Nighthawk, Vermilion Flycatcher, Arizona Crested Flycatcher, Gilded Flicker, Arizona Cardinal, House Finch, Black-throated Sparrow, Verdin, Phainopepla, and Plumbeous Gnatcatcher. The vegetation comprises a number of the most striking forms of cacti, with mesquites and acacias. The background is a typical desert scene, with the beautiful Santa Catalina Mountains in the distance.

California Condor Group. Background by Carlos Hittell.—The site is in Piru Cañon, Ventura County, California, and affords an opportunity for striking scenic effects in the background. The Condor is represented by a lone bird and a single egg.

Brandt Cormorant Group. Background by Carlos Hittell. Birds by Herbert Lang.—An assemblage of six adult birds, a nest with eggs, and three broods of young in different stages of growth.

The scene is a rocky islet off the coast of Monterey, California, a portion of which is here reproduced, with an ocean view for a background.

Summer Bird-life of an irrigated portion of the San Joaquin Valley, California. Background by Carlos Hittell. Birds by H. C. Denslow.—As the title implies, the site is an artificially flooded area on the San Joaquin River, which forms a resort for the nesting of a considerable variety of wading and swimming birds. The 15 species represented in the group, which has an area of 8 by 20 feet, include Avocets, Stilts, Killdeer Plovers, Black and Forster Terns, Black-crowned Night Herons, White-faced Glossy Ibises, Coots, Mallards, Cinnamon Teals, Pintail Ducks, Ruddy Ducks, and Fulvous Tree Ducks. The pools of water and aquatic plants merge effectively into the background. The view is westward, over marshes and fields, to the Coast Range, prominent in the distance.

A Flamingo Colony in the Bahamas. Background by L. A. Fuertes (birds) and Carlos Hittell (landscape). Birds by Herbert Lang.—Scene, a key in the Bahamas; theme, a Flamingo city. The size of the group is 8 by 20 feet, in which are placed 16 old birds, and 18 young birds of different ages, interspersed among a dozen or more of the close-set, raised mud nests and small mangrove bushes, so arranged that birds, nests and mangroves merge imperceptibly into the background of an immense colony of Flamingoes, the whole representing, with wonderful realism, an actual "Flamingo city." The pink color and the outlines of the birds gradually fade out in the distance. The sea and a distant green islet studded with palms form the horizon line, while a long file of flying birds stretching across the sky illustrates the manner of flight of these great ungainly but beautifully tinted creatures. The great variety of positions given to the birds are from photographs from life.

Boobies and Man-o'-War Birds. Background by Bruce Horsfall. Birds by Herbert Lang.—The locality is Cay Verde, a coral islet in the Bahamas, some two hundred and thirty miles southeast of Nassau. The common West Indian Booby and the graceful Man-o'-War Bird are well-represented by both young and adult birds, the former species nesting on the ground, the latter in dense growths of bushes ('sea-grape') and cactuses. The inflated



A KLAMATH LAKE BIRD COLONY.

throat-pouch, of a vivid red color, gives a grotesque effect to the otherwise somber colored male Man-o'-War Bird. The background shows a portion of the key, with its peculiar vegetation, combined with a sea view of unusual interest.

Golden Eagle Group.—The scene is in the badlands of Bate's Hole, Wyoming; the nest is on a shelf of a high cliff. A fine old bird and two eggs represent the species, with a striking badlands background of buttes and gorges.

A Klamath Lake Bird Colony. Background by Carlos Hittell. Birds by Herbert Lang.—Klamath Lake, on the California-Oregon boundary line, is a vast expanse of shallow water, broadly bordered with tulés and rushes, and studded with low small islets covered with vegetation similar to that of the shores. It is thus a favorite breeding resort for a great variety of water birds, among which are the White Pelican, the California and Ring-billed Gulls, Caspian Tern, Farallone Cormorant, Great Blue and Black-crowned Night Herons, Wild Geese, the Bufflehead and other species of Ducks. The birds shown in the group are the White Pelican (old birds and young, nests and eggs), the Western Gull, Caspian Tern (numerous individuals of each), and the Farallone Cormorant. The scene is a tulé island, with similar small islands in the immediate background, treeless hills beyond, and snow-capped, grand Mount Shasta in the distance.

Arctic-Alpine Bird-life in the Canadian Rockies. Background by Carl Rungius, from a sketch by L. A. Fuertes.—Scene, about fifteen miles north of Laggan, at the Ptarmigan Lakes. The birds represented are the White-tailed Ptarmigan and American Pipit (with nests and eggs of each species), and the Rosy Snow Finch or *Leucosticte*. The background portrays one of the most impressive views in the Canadian Rockies, it including Mounts Redoubt, Temple, Hungabee, Lefroy, and Victoria.

Sage Grouse Group. Background by Carlos Hittell. Birds by Herbert Lang.—Scene, sage-brush plains, Medicine Bow, Wyoming. Two old males and a female, in characteristic attitudes, and eggs; others are shown in the nearer portion of the sage-brush background; Elk Mountain and the Snowy Range in the distance.

Love-making of the Prairie Hen. Background by Bruce Horsfall. Birds by H. C. Denslow.—Seven old birds, the males attitudinizing,

the neck-tufts erect and the large orange-colored air-sacks inflated. Scene, prairies of western Nebraska, with an effective landscape.

Wild Goose Group. Background by Hobart Nichols. Birds by Herbert Lang.—At Crane Lake, Saskatchewan, near the line of the Canadian Pacific Railway, where water birds, both swimming and wading, assemble in great numbers to pass the nesting season. The site shown is the grassy border of the lake, with the lake and distant hills in the background. The group consists of a single pair of old birds and their brood of seven young, in a foreground of grass and coarse plants.

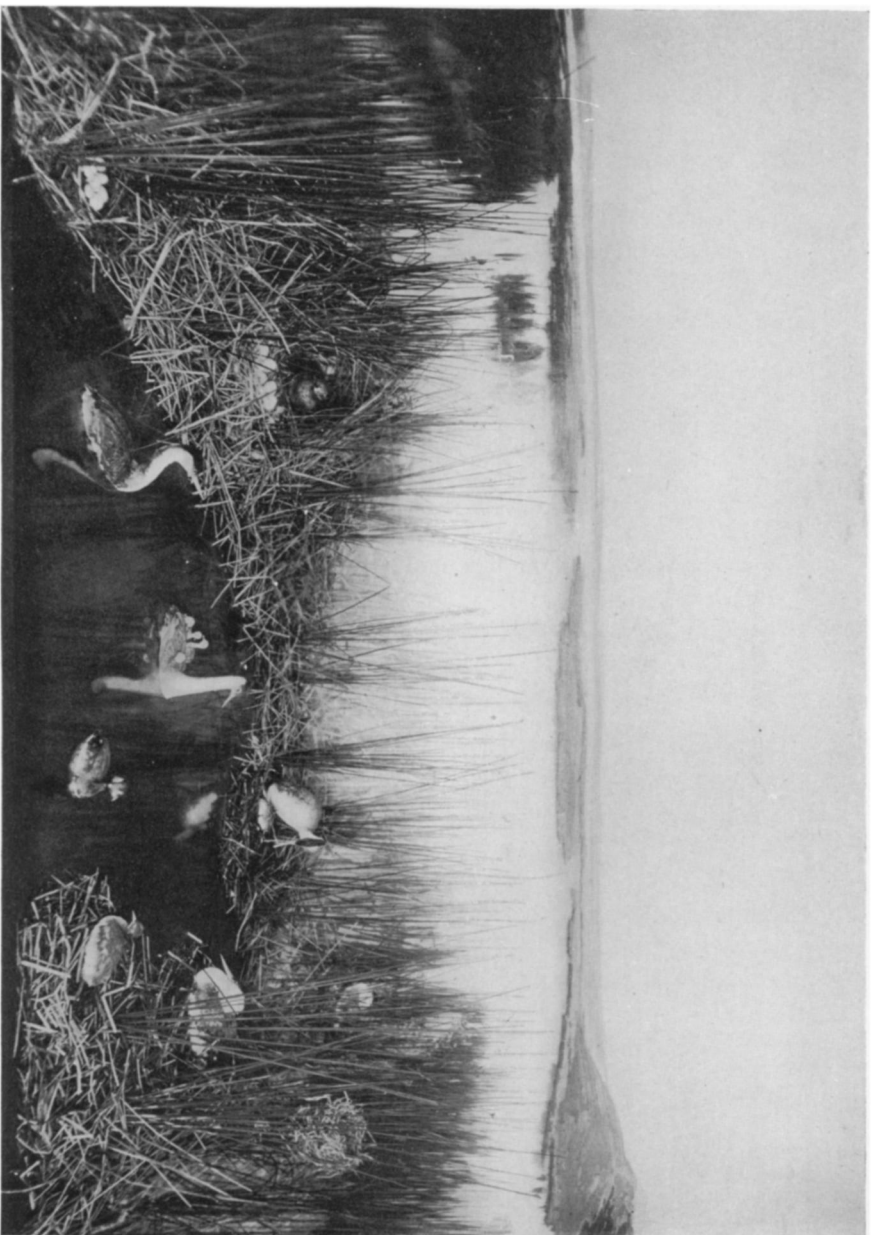
Grebe Group. Background by Hobart Nichols. Birds by Herbert Lang.—The studies here represented were also made at Crane Lake. The species are the Western Grebe and the Eared Grebe, several birds of each being shown, with nests of eggs and young birds. A female Redhead Duck, with her nest full of eggs, is introduced at the rear left corner. The site chosen is a grassy slough, with the lake and its numerous islets as a background.

Bird Rock Group. Birds by H. C. Denslow.—This is a realistic representation of a section of Bird Rock, in the Gulf of St. Lawrence, the long-famous breeding resort of the sea birds of that region. The group contains 73 birds, illustrating seven species. It was the first of the present series of large bird groups to be installed, and has already been described in this journal.¹ It is the only one of the series without a panoramic background, the cliff-like character of the group precluding such treatment.

In addition to the series of groups above described, another is nearly completed, representing a section of the famous Cuthbert Rookery in southern Florida, illustrating the habits of the Roseate Spoonbill, White Ibis, Snowy and American Egrets, Louisiana and Little Blue Herons. Among others planned to complete the series are groups illustrating the Turkey Buzzard, Whooping Crane, Loon, and Eider Duck, which will each afford the occasion for the introduction of additional scenic types in the backgrounds.

The production of this series of habitat groups has been a serious undertaking. It was work, in many ways, in new lines, where difficulties of many kinds were to be overcome, both in the field

¹ Auk, XX, 1903, p. 247.



GREBE GROUP.

and in the laboratory. The large degree of success that has attended the enterprise is due to the foresight, good judgment and enthusiasm of Mr. Frank M. Chapman, who during the last ten years has spent much of his time in gathering this unique material and superintending its preparation. Each group has been the product of a special expedition, the aggregate amount of travel entailed being estimated at about 65,000 miles. On all of the later expeditions Mr. Chapman took with him an artist and a preparator, and on all occasions the camera has played an essential part.¹ It has thus been possible to pose the birds in the groups after photographs of the living bird, unconscious of observation, taken from points of concealment devised to meet the occasion. The backgrounds have been painted, in nearly every case, by artists who have accompanied Mr. Chapman on these expeditions and have thus been able to paint the actual scene from nature which the groups illustrate.

In the foregoing list of the groups credit is given, in most instances, to both artist and preparator for their respective shares in the production of the groups,—the backgrounds and the mounted birds. The vegetation, however, forms an important element in their effectiveness, it having been reproduced in facsimile in wax, either from plaster casts of the parts represented or direct from the parts themselves. This feature of the work has been done under the direction of Mr. J. D. Figgins, Chief of the Department of Preparation at the Museum, and who has often accompanied the expeditions and taken charge of the plants and other field materials necessary to the perfection of the groups.

Difficulties were also encountered in the installation of the groups, in order to secure proper lighting and effectiveness of exhibition. In large plate glass case fronts, everything directly in range is reflected in the glass, to the more or less obscuration of the contents of the case. Experiments to overcome this effect were instituted by the Director of the Museum, Dr. Hermon C. Bumpus, and largely through his resourcefulness this difficulty, and others in the way of lighting the groups, have been effectively overcome. To quote

¹ See Mr. Chapman's recent book, 'Camps and Cruises of an Ornithologist,' where his field work during these expeditions is recounted, and where hundreds of his photographs are reproduced.

from Mr. Chapman's 'Guide Leaflet,' already cited: "Each group has demanded its own special treatment, and, in the construction of the series, the many novel problems encountered have resulted in the development of original methods. This is particularly true of the manner of installation and illumination of the groups at the sides of the hall The background is curved [convex backward] with the front opening so reduced in size that at the proper distance, or 'correct view-point,' neither the ends nor the top of the group can be seen. By thus leaving the actual limits of the group to the imagination the illusion of space and distance is greatly heightened." Furthermore, the groups are lighted from the top by diffused light; electric lighting is employed at night, or whenever the daylight is insufficient, but in either case the light comes from the same diffusing surface. The reflection of outside objects in the case fronts has been wholly prevented by the erection of a screen consisting of a low wooden partition placed at the inner edge of the gallery which serves not only to cut off reflections but tends to concentrate the attention of the observer upon the special and thus wholly isolated exhibit before him.

It is needless to say that the cost of this unique series of bird groups has been heavy, and the work could never have been undertaken by the Museum on the basis of its ordinary sources of income. It is therefore fitting to close this sketch with a list of the names of the friends of the Museum who have made these results possible, as follows:

Mr. JOHN L. CADWALADER.

Mrs. MORRIS K. JESUP.

Mrs. PHILIP SCHUYLER.

Mrs. JOHN B. TREVOR.

Mrs. ROBERT WINTHROP.

Mr. F. AUGUSTUS SCHERMERHORN.

Mr. H. B. HOLLINS.

Mr. HENRY CLAY PIERCE.

Mr. HENRY W. POOR.

Mr. COURTENAY BRANDRETH.